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CASES OF VARIOLA IN THE BOSTON SMALLPOX HOSPITAL.

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BY DAVID W. CHEEVER, M.D.

OF 97 cases of variolous disease, received into the City Smallpox Hospital between July, 1859, and June, 1860, there were 47 of confluent smallpox; 20 of discreet smallpox, and 30 of varioloid. Two other cases, sent there as fit subjects for a smallpox hospital, were affected with erythema papulatum, and measles, respectively. Sixty-seven patients—a little over two thirds of the whole number—had true smallpox.

Death took place in 14 cases. In 10, it occurred either during the height of the disease, or as a direct sequence of the process of maturation. Hæmorrhage precipitated a fatal result in one instance. Two others were cut off by acute pleurisy, with effusion, when they had already rallied from the smallpox, and were considered convalescent. One old man died from diffused abscesses, on the thirty-eighth day. Two others were detained in bed six and eight weeks from the same cause. Two who died were known to be drunkards; but so were several who recovered, while many more were addicted to moderate stimulation.

The dates of death were as follows:—1 on the fifth day; 1 on the eighth; 3 on the ninth; 1 on the twelfth; 1 on the thirteenth; 2 on the sixteenth; 1 on the seventeenth; 1 on the eighteenth; 1 on the twenty-third; 1 on the twenty-fifth; and 1 on the thirty-eighth day, after the appearance of the eruption.

The average duration of cases in the Hospital was, for varioloid and discreet smallpox, from one to two weeks; for the confluent form, about four weeks.

As to sequelæ and complications—affections of the eyes, beyond a mild conjunctivitis, were not frequent; but perforation of the

cornea once followed purulent ophthalmia. Delirium, almost always impelling the patient to get out of bed, was quite frequent. Mania persisted, through a tardy convalescence, in one instance. (The patient was lost sight of, but probably recovered, as a glass of brandy and water would always temporarily restore sanity.) Extreme aphonia was present in two cases, of whom one died and one recovered; also a diphtheritic condition of the fauces in one, who recovered. Salivation, swelling of the salivary glands, sore throat and hoarseness, were of every degree of severity. There was one case of abscess over the parotid. Cough was not common. The bowels were generally inclined to looseness. Two cases resembled, in their convalescence, typhoid fever, having pain and tenderness in the right iliac region, and lingering in a typhoid state. Boils, generally numerous, followed a large majority of the recoveries from real smallpox. Diffuse, ill-conditioned abscesses, and bullæ filled with dark serum, retarded convalescence many times, and in two instances threatened a fatal result. Bed-sores and sloughs occurred twice. Falling of the hair was pretty common. No symptom was oftener complained of than the pain in the soles of the feet, when the eruption was pushing through the hardened cuticle. The occurrence of menstruation during the disease was generally unfavorable. Ordinarily, the convalescence of those who recovered was good and rapid; but several females and old people left the Hospital permanently broken down. The age of the patients ranged from a few weeks to sixty years.

There were five cases complicated with hæmorrhage. Four died, and one recovered.

Case I.—C. N. Carroll was attacked by epistaxis, which was finally restrained by plugging the posterior nares. But the eruption flattened and became livid, and he died in a wandering delirium, on the fifth day. This patient's aspect was livid and feeble, when brought in, but the eruption, though copious, was, before the hæmorrhage, well out and of a good color.

Case II.—John Kehler, a vigorous young man, in whom the disease promised to assume a very sthenic form, had a large hæmorrhage from the bowels on the sixth day. The pock flattened, and he died on the ninth day.

Cases III. and IV.—Mary McGelly and Mary Gowen both had profuse menstruation soon after being attacked with confluent smallpox, and died on the ninth and seventeenth days, respectively; the latter having also, at the last, hæmorrhage from the bowels. (Miss ———, seen in private practice, died also after profuse menstruation, before maturation, and with the eruption looking like a sprinkling of whortleberries.)

Case V.—Mary King, brought from a wretched shanty where every circumstance had been unfavorable; moved at the height of the disease, and weakened by profuse menstruation, contrary to expectation, finally recovered.

The coincidence of the vaccine disease with variola in two cases, offers some points of interest.

Case VI.—Mary Harrington, aged 14, was admitted Sept. 26, 1859. The eruption appeared on the 22d inst. She was vaccinated, for the first time, between the 15th and 17th, she cannot recall the day. She had two brothers with smallpox in the Hospital, and to their influence she had been exposed at home; John, who broke out on the 9th, and Jerry, who broke out on the 16th inst. She had then been exposed at least one week before she was vaccinated; and the smallpox broke out on her from five to seven days after vaccination. On her admission, the smallpox eruption was four days, and the vaccine vesicle nine or ten days old.

The variolous eruption was thick and even confluent on the face; copious on the limbs, and mingled with large, flat bullæ. There were two well-marked, flattened, milky-white vaccine vesicles on the arm; but the areola was small, and the soreness slight. The smallpox went through all its usual stages. There was no favorable modification from the vaccination. The pustules filled imperfectly; the child was feeble and upheld by stimulants; the scabbing of the pustules was slow, and convalescence quite protracted.

Case VII.—William W—— was admitted Feb. 14th, 1860. Vaccinated, for the first time, Feb. 9th. The next day had feverishness, headache, and pain in the back. The eruption of smallpox appeared on the 12th. On his admission, the variolous eruption was two days, and the vaccination five days old. Though so recent, the vaccination showed itself in three *pustules*, which, though in advance of the rest of the eruption, assumed more and more the appearance of smallpox pustules, as the disease went on. His sickness was not at all moderated by vaccination. The disease was confluent; the pustules flattened, and the throat and mouth were severely affected. With free stimulation he went through the period of maturation, and from the sixteenth to the twentieth day, appeared convalescent. But on the twenty-first and twenty-second, had acute pleurisy, and died, with a large effusion, on the twenty-third.

It is right to add that this patient was first treated in Worcester, hydropathically, with packing in cold, wet sheets, and then brought to Boston in the night, and carried to the Hospital.

In these two cases vaccination had not, perhaps, sufficient start of the smallpox. Numerous instances of the co-existence of variola and vaccinia are recorded. Willan says, that when a person is inoculated with vaccine and variolous matter, within a week of each other, both inoculations take effect, and each pursues its course. Brusquet has given sixteen cases, in which the two diseases co-existed, and, in all, the patients died.

Yet the following case not only proves the protective power of

vaccination, but that it needs but a short start of the period of exposure to smallpox, to be effectual.

Case VIII.—Mrs. Costello and an infant child were admitted in August, 1859. The child was vaccinated on the 25th of August; the mother broke out with smallpox on the 27th, and had the disease in the discreet form. The child nursed, and remained in bed with its mother, all through her sickness. On its admission to the Hospital it had good vaccine vesicles, which ran a regular course, and it was otherwise healthy. On the 30th inst., it broke out with a fine, papular eruption, resembling that of scarlatina, which faded on the second or third day. On Sept. 4th, a few pimples appeared, which advanced to vesicles, and then scabbed irregularly, and dried up like varioloid. It was not sick at all.

None of the nurses or attendants contracted the disease. All were re-vaccinated, or had had varioloid, but one. On him vaccination, often attempted, had always failed, nor had he ever had the disease in any form; yet, although constantly exposed, and handling the sick, he escaped free.

Instances enough were afforded of the loss of the protective power of vaccination through time. Of course, the thirty cases of varioloid were all examples of imperfect protection. And in many other cases (we have not the exact number at our command), more or less perfect vaccine scars existed. Even the severer form of the disease attacked those with good marks of vaccination. In these cases vaccination had been performed in childhood, from twenty to forty years previous to the attack of smallpox.

Case IX.—Frank Francis, aged about 24 or 25. Had a good vaccine scar. Yet he suffered from confluent smallpox, with a very slow convalescence; being in bed six weeks, with abscesses, bedsores, &c. Finally recovered.

Case X.—Thomas H——, aged 56; vaccinated in childhood, and has a very distinct and *foveated* cicatrix. Confluent smallpox and delirium tremens. Severely sick; in bed about three weeks; and had an abscess in right hypochondrium. Recovered, but was left weak, and badly pitted.

Case XI.—Maria K——, aged 25; was vaccinated in childhood, and has a good cicatrix. Confluent smallpox; cough, sore throat with membranous exudation; diarrhœa, and lingering convalescence in a typhoid state. Ultimately recovered.

It has been asserted that vaccination always protects enough to save life, even though the subject may go through confluent smallpox. Though generally true, yet such has not been our experience in every instance.

Carroll (Case I.), who died on the fifth day of confluent smallpox, which became livid and flattened in consequence of hæmorrhage, had *two*, good, vaccine cicatrices.

Still more marked, as a case of death from smallpox alone, is the following.

CASE XII.—William Foy, aged 30; had a good vaccine cicatrix of childhood. Not a man of intemperate habits. Confluent smallpox; no complications. Surface generally dusky, and even livid: flattening of the eruption; delirium. Very offensive maturation, with a sanious discharge from beneath the scabs. Death on the seventeenth day, in a state of universal suppuration and decomposition.

It has been well said that, "a vaccine scar proves only that protection has once existed." A foreign authority even goes so far as to say that the perfectness or imperfectness of the scar has no influence on the disposition to contract smallpox.

The statistics of the epidemic of smallpox at Berlin, from 1857 to 1859, give us the number of cases at various ages; the percentage of deaths in the whole number, and the percentage of deaths among the vaccinated, and among the not vaccinated. The whole number of cases is 5634; and of deaths, 499. Of the 499 fatal cases, 242 *had been vaccinated.* While the mortality of all was thus about eight per cent., the mortality among the vaccinated was five per cent. It should be borne in mind, however, lest we think too lightly of vaccination, that the mortality of those never vaccinated was thirty-four per cent. By these tables we learn, that, after the fifth year of age—and still more after the tenth—when the majority of the population has been vaccinated, the cases become less frequent. After the fifteenth and twentieth year, cases augment, reaching the maximum between twenty-five and thirty. The mortality among the vaccinated, which was almost nothing from five to twenty years of age, after that gradually increases, with the diminished protective power of vaccination.

Thus vaccination had partially worn out in very many; and completely worn out in a good many, as shown by the deaths.

A physician in this vicinity has sought to prove, by statistics based on 500 and odd cases, that vaccination does not wear out in time. But statistics based on some thousand cases, in the *Archives Generales,* prove just the reverse. So we must not rely on figures alone, but on general experience, which certainly has taught us, that the importance of re-vaccination has not been enough insisted on. Late epidemics, indeed, have proved the need of *compulsory* vaccination and re-vaccination.

Two causes chiefly contribute to the permanence of smallpox among us.

First, The large number of children, born and living here, whose vaccination is neglected by their parents, until the public school certificate renders it necessary.

Second, The coming to, and residence in the city, of many adults from the back districts of Maine, Vermont, &c., who have never been vaccinated at all.

ON THE ALTERATION OF PITCH OF CARDIAC MURMURS BY CONDUCTION THROUGH THE VARIOUS MEDIA COMPOSING THE THORACIC ORGANS AND WALLS.

By Sydney Ringer, late Physician's Assistant at University College Hospital, Edinburgh.

In a paper published in the Proceedings of the Royal Society,* I have endeavored to show that the pitch of sound is altered by conduction. The nature of the alteration varies with the conducting medium. The following is a summary of the conclusions there arrived at by experiment:—

That porous substances, such as wood or bone, lower the pitch in proportion to their porosity. All other solids, such as iron and glass, raise the pitch.

Fluids raise the pitch.

Fluids in motion raise it more than fluids at rest.

Solutions in water raise it more than pure water, and in proportion to the strength of the solution.

Minute particles suspended in water raise it more than either pure water or solutions.

Gases raise the pitch slightly.

The heart's substance lowers the pitch.

Cellular tissue raises it.

All the above altered the pitch in proportion to the amount of the conducting medium listened through.

In the following paper it is intended to explain the alterations in pitch in cardiac murmurs by conduction by the above principles; but as these alterations in pitch have not hitherto been noticed, it is necessary first to state them.

When a murmur, conducted either through the heart's substance or the sternum, is listened to, the pitch is found to be lower than at the point of production. Thus an apex murmur is found to have its pitch lowered when listened to at either the ensiform cartilage or at the base of the heart; while a base murmur is found to be lowered in pitch when listened to at the apex or ensiform cartilage.

Should there, however, be effusion into the pericardium, the very reverse takes place of what is stated above; the pitch being then raised, instead of lowered, at the different points named.

Again, a murmur generated at the base, at either orifice, is found to have its pitch raised at the second cartilage to which the vessel in which the murmur is generated runs; whilst, on the other hand, it is notably lowered at the second cartilage on the opposite side. Thus, should it be an aortic murmur that is being listened to, the pitch is found to be heightened at the second right, and lowered at the second left cartilage. Should it be a pulmonary murmur, the reverse is the case.

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* Proceedings of the Royal Society, January 26, 1860.

Any murmur heard through the medium of air-containing lung is found to have its pitch heightened by the conduction.

The cause of the lowering of the pitch when heard through the medium of the sternum, or heart's substance, is explained by the property they possess of lowering pitch by conduction, which has been shown to be the case in the paper I have alluded to.

In effusion into the pericardium, it has been said that the pitch is raised, instead of being lowered, as in the above case. This is due to the property fluids have of raising the pitch, and was well illustrated in the following case:—A patient suffered from extensive effusion into the pericardium; also from a loud mitral regurgitant murmur. The pitch of this was found to be higher at the base and at the ensiform cartilage than at the apex. As the fluid became absorbed, as ascertained by percussion dulness, so did the distance to which the pitch was raised, beyond that again falling. Thus, when the fluid reached as high as the second rib, the pitch was found to be raised to that point; but when it fell to the third rib, the pitch was still found to be raised as high up as this; but, on listening higher still, the pitch fell again. After the fluid was considerably absorbed, the only direction in which the pitch was raised was in passing inwards to the ensiform cartilage (the patient being in the erect posture). On placing the patient in the recumbent posture, and depressing the upper part of the chest, at the same time elevating the lower, thus causing the fluid to gravitate away from the apex and ensiform cartilage, the pitch was found to be lowered in passing to the ensiform cartilage. On restoring the patient to her first position, the pitch again became higher at this point than at the apex.

The elevation of the pitch of a basic murmur at the second cartilage, to which the vessel generating it runs, is also due to the fluid in the vessel. It may be objected that the distance is too short; and also that, as the blood is in motion, the murmur would be carried, and not conducted, by the fluid. The following experiments, however, show that these objections are not valid:—

Into an India-rubber tube, thirteen inches long and three fourths of an inch in diameter, a funnel was inserted. Immediately below this a small opening was made, just large enough to admit the end of a tuning-fork. Water was kept constantly running through this, and the stethoscope (covered with a diaphragm) was applied to different parts of the tube. By this method the pitch was found to be most appreciably raised the further from the fork the stethoscope was applied to the tube. The elevation of pitch was easily recognized at the distance of two and a half inches. Next, an aorta was tied to the mouth of a tap, and an artificial murmur produced by causing a constriction of the vessel by a piece of twine tied round it. The pitch of the murmur so produced was decidedly raised the further it was heard along the vessel from

the point where the sound was generated. It was easily appreciated at a distance of two and a half inches.

To set the question quite at rest, a tourniquet was placed over a man's femoral artery, immediately below Poupart's ligament, and an artificial murmur was thus produced; this was found to rise in pitch in passing down the course of the vessel. A well-marked difference was noticed at a distance of two and a half inches. The intensity of the murmur quickly diminished in passing to the right or left of the vessel, the pitch at the same time being rapidly raised, which was due to the interposition of the integuments; but this interposition could not be the cause of the rise of the pitch in the course of the vessel, as the murmur could be heard in that direction at a distance of at least six inches, whilst it was completely lost at a distance of two inches to either side of the vessel. Thus the murmur must have been conducted by the blood; whilst the same thickness of the integuments was over the artery at the lower as the upper point listened to, for both points were above the place where the sartorius muscle crosses it. Indeed, in the paper alluded to, I have shown:—

1. Fluids at rest raise the pitch.
2. Fluids in motion still more.
3. Solutions raise it more than water.
4. Fluids holding minute particles in suspension raise it still higher. Now all these conditions are found in the blood.

The reason the pitch is lowered when the murmur is listened to at the second cartilage opposite to that to which the vessel producing the murmur runs, is, that it is conducted through the sternum, which has been shown to lower the pitch.

In passing up to the sternal notch, the pitch of a basic murmur is found to rise. Here, probably, two causes act:—First, the vessel which conducts the sound is nearer this point; and, secondly, lung to some extent intervenes, which raises the pitch, gases having this tendency.

It has been stated above, that a murmur heard through lung is found to have its pitch raised. This is due to the air it contains. This has been proved elsewhere, but the following experiment also shows it. A patient presented himself with a loud mitral murmur, audible over the entire chest. A point where much lung, and only lung intervened, was chosen, and the stethoscope applied to this point. The patient was directed first to expire deeply, and the pitch ascertained. He was then told to inspire to the utmost, and retain it, whilst the pitch was again ascertained; and under the last condition it was found most appreciably raised. The only altered condition here was an increase in the amount of intervening air.

The following is the diagnostic application of the above facts:—
When a murmur is very intense, it is audible over the entire heart

region, often rendering it difficult to decide whether there is but one murmur audible at the other orifices merely by conduction, or whether two original murmurs exist. The point of greatest intensity will decide one; and, if percussion dulness excludes the possibility of fluid in the pericardium, and the pitch of the less intense murmur heard at the other orifices be higher than that of the most intense, this is indubitable proof of the existence of a second murmur.

In cases where tumors simulate in their percussion dulness, fluid in the pericardium, should a murmur exist, the tumor being solid would probably lower the pitch; should it be, however, fluid, the pitch would be raised by conduction through it. Again, it is often difficult to decide whether a basic murmur be aortic or pulmonary, or both; it being heard with equal intensity at both second cartilages. If aortic only, the pitch will be heightened at the second right cartilage, but lowered at the second left, and *vice versa* in the case of a pulmonary murmur; whilst, should both exist, the pitch will be heightened at both cartilages.—*Edinburgh Medical Journal.*

ARTIFICIAL LACTATION.

In the *Transactions of the Indiana State Medical Society*, at the Annual Session, held May 17 and 18, 1860, Dr. CHARLES M. WETHERILL has published a paper upon the above interesting subject. The writer, after noticing the different chemical compositions of milk, and the variations between that of the human female and that of animals, makes the following suggestions:—

For an artificial human milk, I would propose the substitution of *milk sugar* for cane sugar; an addition to give to the casein of cow's milk the characteristics of that of human milk; attention to the kind and proportion of mineral salts, and to the nature of the butter. I think that a great deal may be done with our present knowledge, not only in making the mixture, but in preparing the cow's milk by a proper regulation of the animal's diet. The saline ingredients of milk are small in quantity, and not so complicated in the proportion of their mixture as to preclude the hope of obtaining by the data afforded by analysis, an artificial human milk from cow's milk by the proper additions.

In respect to the butter, which is said to be more oleiniferous in human milk, a great deal is to be expected from proper attention to the diet of the cow.

I look forward to the substitution of the cow for the wet nurse. Over the diet, temper, and life of the animal we have complete control. Placing her in a healthy, well-ventilated stable, and furnishing her with exercise and the proper kind and proportion of food, she may become a perfect and scientific milk machine. By paying attention to these points, as well as to the fact that some cows

are by nature as well as by diet butter cows, while others excel in cheese, we can doubtless obtain, with but little difficulty, milk containing not only casein of a nature more suitable to the infant, but an oleiniferous butter in proportion adapted to the dilution necessary for transforming cow's milk to artificial human milk. It is well known that oily food renders the milk more butyraceous, and Boussingault's experiments show that cows fed exclusively upon potatoes yield a more caseous milk than with any other diet. The nature of the casein in the respective milks is of great importance. To this ingredient doubtless is due much of the injury received by infants nourished upon cow's milk. Simon found the dry caseous precipitate from human milk to be yellowish-white, brittle, hygroscopic in the air, insoluble in alcohol, but yielding a troubled foamy fluid with water; from which it was completely separated by acetate of lead, tannin and chloride of mercury, and incompletely precipitated by acetic acid and solution of alum. The casein of cow's milk was with more difficulty soluble in water, and on drying became tenacious and horn-like. Dumas found these two kinds of casein constituted exactly alike.

According to Simon, Elsasser and Lehmann, the casein coagulum from human milk is always very loose and gelatinous; while that from cow's milk is very dense and lumpy. Lehmann supposes that the gelatinous behavior of the former milk is determined by its more alkaline nature, having observed that acid human milk yields a denser coagulum than a more alkaline milk; while a more alkaline cow's milk gives a looser coagulum than acid milk.

I cannot think that the casein of cow's milk differs essentially from that of the woman.

I have performed the following experiments upon the milk of a cow eleven months after calving. Three hours after milking, the liquid was taken from the ice chest and brought to the temperature of 90° Fah. The milk reacted distinctly alkaline to litmus paper. It was divided into eight portions of 100 grains each, with the following additions:

No. 1.	Pure milk.		
2.	do.	with eq. quantity water of 90° Fah.	
3.	do.	do.	1-4 gr. neut. carb. soda, and 4 grs. milk sugar.
4.	do.	do.	1-2 gr. do. do.
5.	do.	do.	1-4 gr. phos. soda, do.
6.	do.	do.	1-2 gr. do. do.
7.	do.	do.	1 gr. do. do.
8.	do.	do.	1 gr. precip. phos. lime, do.

A piece of calf's rennet* was then added to each portion contained in wine glasses, and kept standing in an atmosphere of 79° Fah. Fifty minutes after the addition of the rennet, No. 1 began to coagulate with a dense curd and slightly acid reaction. Shortly afterwards No. 2, with a looser curd. No. 8 then curdled gradu-

* As the rennet had been kept in salt, and tasted, after washing, quite saltish, chloride of sodium was not added to the artificial milk.

ally, the curd being quite gelatinous. A half hour later than No. 1, the specimens containing phosphate of soda began to coagulate in the order 5, 6, 7. Two and a half hours from the commencement of the experiment, No. 3 began to show signs of a separation of the casein, No. 4 being unchanged.

In all of the portions of milk containing the above-mentioned salts, the curd was much looser than in Nos. 1 and 2. In the cases of the carbonated and phosphated alkali, it was quite gelatinous, and with the carbonated, the separation was by far the tardiest, and the casein by far the loosest. The smallest quantity of this salt added, gave a milk containing 1-8 of one per cent. A much smaller quantity would retard the separation of the casein by rennet. I noted that the slower the coagulation, the more gelatinous was the coagulum.

I infer from these experiments a beneficial effect to be produced upon the casein of the cow for the purposes of artificial human lactation, by the addition of small quantities of appropriate salts. I was surprised at the degree to which the phosphate of lime retarded the coagulation, although it is said that casein will hold in solution 6 per cent of this salt.

CONTRIBUTIONS TO THE PATHOLOGY OF DIABETES MELLITUS.

THE *Dublin Quarterly* for August, 1860, contains a translation of an article with the above title, by Rud. Leubuscher, published in *Virchow's Archives*, Vol. XVIII.

The following results were derived from careful observation and experiments upon a girl 19 years of age, who entered the hospital of Jena, with diabetes and phthisical symptoms:—

"1. The temperature of the skin was, during the entire period of the patient's stay in hospital, below the normal standard, being generally only 95° Fahr., and, even under the influence of an acute affection, which finally proved fatal, it did not exceed 96° Fahr. The difference in the nature of the food appeared to have less effect on the variations of bodily temperature than the existing temperature of the room.

"2. The amount of urine excreted does not correspond to the quantity of drink ingested, but exceeds it many times. This was particularly striking one day, when six ounces of red wine, three ounces of rectified spirit, and 1000 cubic centimètres of water, were taken, the quantity of urine amounting to only 3300 cubic centimètres—less than usual. But the desire of patients to deceive in general renders this circumstance uncertain.

"3. When the food is mixed, and abounds in starchy matter, water being at the same time freely taken, the quantity of chloride of sodium and of urea excreted in twenty-four hours considerably exceeds the normal proportion. Great amount of sugar.

"4. A predominance of meat increases the quantity of urea, and

diminishes that of sugar, without essentially influencing the amount of common salt.

"5. The free use of milk with mixed diet does not produce any change in the quantities of sugar, chloride of sodium and urea excreted.

"6. The ingestion of alcoholic drinks, with predominant protein-food, considerably increases the excretion of sugar; the quantity of urea is diminished; the proportion of chloride of sodium undergoes no change. Dr. Rosenstein* has obtained a similar result, but states that he observed that the excretion of sugar becomes relatively less in proportion as the amount of alcohol in the wine increases. In my case the increase of the sugar is the more valuable, on account of the simultaneous administration of nitrogenized food, which usually has the effect of diminishing the quantity of sugar.

"In all such experiments a great difficulty exists, which unfortunately cannot be avoided, although it may sometimes have a disturbing influence on the results obtained: I allude to the restraint which it is necessary to exercise over the patients, and which has a tendency to excite uneducated persons to opposition, deception and evasion of the physician's directions, and in the most favorable case produces in the patient a state of physical tension and excitement, which may easily modify the metamorphosis of tissue.

"A second series of experiments was undertaken to ascertain the influence of various medicines. The patient got mixed diet, with plenty of meat, about a pint and a half of good brown beer, but was no longer confined; therefore the quantity of drink taken could not be ascertained with perfect certainty.

"The following were the results:—

"7. Iron given in the form of lactate, in doses at first of four, and subsequently of six grains, from the middle of November to the middle of December, afforded a mean quantity of sugar, the urea and chloride of sodium remaining the same, and the patient continuing in general good health.

"8. Pepsin, in doses of ten grains twice a day, from the middle of December to the beginning of January. The quantity of urine excreted was less, its specific gravity was higher, reaching to 1·044; all the constituents—sugar, urea and common salt—were both relatively and absolutely increased. The general health was, at the same time, uninterruptedly good.

"9. Benzoin, given in daily doses of about six or eight grains, as benzoic acid, benzoate of ammonia, and benzoate of soda, from the middle of January to the middle of February, had no decided effect on the excretion of chloride of sodium and urea; the amount of sugar continued moderate. The principal object, however, in giving the benzoic acid, was to trace its change into hippuric acid. * * *

"The general state of the patient during all these experiments, which were continued to the end of March, was satisfactory; the only temporary interruption to health was caused by a furuncle on the nates."

But, on the 30th of March, the patient, after violent mental emotion and exposure to cold, was seized with shivering, and vom-

* Virchow's Archiv, Bd. xiii., p. 479.

ited once. She died on the first of April, the symptoms under which death took place being chiefly indicative of poisoning.

"As in other dyscratic conditions the theory suggested itself, that under the favoring influence of an acute local affection (in this instance increase of the pulmonary disease), a metamorphosis specially hostile to the nervous system had occurred in the blood. The rapid increase of the pulse, and its enormous frequency, were striking; which, combined with the diminished temperature of the skin, seemed to point to exalted activity in the domain of the sympathetic respiratory nervous system, with paralysis of the cerebro-spinal, if it is allowed to make such an application in a given case. Other observers (Lomnitz, Rosenstein) have stated, on the contrary, that in intercurrent acute diseases of diabetic patients, the temperature of the body attains much higher degrees than in non-diabetics, while, under ordinary circumstances, it sank, with these authors too, below the normal standard.

"The occurrence of vomiting, and the subsequent drowsiness, likewise indicated poisoning, in consequence of a decomposing process in the blood. This assumption was supported by the nature of the urine; and the important change in its constituents during the last few days—namely, its comparatively low specific gravity, the increased quantity of albumen, and the striking diminution of the sugar and augmentation of the urea. Had the formation of sugar been so moderated, or was it merely the excretion of that principle which was diminished, and had the non-excreted portion undergone other metamorphoses? How, then, was the increased amount of urea to be explained, and might the excretion of albumen be considered as the result of renal disease?

At the examination, performed twelve hours after death, there was found tubercular disease of the lung, with inflammation of the stomach and small intestine. The kidneys were enlarged, firm, and deficient in blood.

"Accurate examination of the blood exhibited, under the microscope, a large quantity of free fat and white blood-corpuscles. After the coagulable portions were separated by boiling, the presence of a considerable quantity of sugar was demonstrated in the filtered fluid, both by Trommer's test, and by fermentation. In like manner, the existence of urea was demonstrable in a portion from which the sulphuric and phosphoric acids were previously removed by means of barytes, by precipitation with a solution of nitrate of mercury, and in another evaporated portion the characteristic crystals of nitrate of urea appeared on the addition of nitric acid. Some of the white bloody fluid, which stood in a test-glass above the red portion, on being agitated with ether, was almost completely dissolved. After the evaporation of the ether, cholesterin, margarin and leucin remained behind. In the decolorized blood, which had an alkaline reaction, free ammonia was not demonstrable. The filtrate of the expressed hepatic fluid contained much sugar.

"The foregoing case coincides remarkably with the instances already repeatedly observed, of the existence of milky blood in diabetes, and where, by some unknown process, the metamorphosis of fat, as also of sugar, is impeded. Death took place under the simultaneous increase of the pulmonary affection, and accession of gastri-

tis and enteritis; and it is probable that these two processes, especially the first, the disturbance of respiration, which, at the same time, attacked both lungs, materially promoted and augmented the alteration of the blood. It is probable that the important change in the mass of the blood did not occur until the recent attack, as the opening of an abscess some months previously exhibited no external sign of any particular alteration of the blood; it would have struck us, if it had attained so high a degree as we found on the *post-mortem* examination: the patient, too, had always felt very well up to the date of her last illness.

"But if the changes in the lungs and intestinal mucous membrane found on dissection, promoted the metamorphosis of the blood, they certainly were not its sole cause, but the violent mental emotion and exposure to cold were quite competent to have, of themselves, established the process; indeed, proportionably slight causes are sufficient in dyscratic conditions to produce the most extensive decompositions in the vital fluid.

"The nature of the blood also satisfactorily explains the decrease of temperature of the skin and the phenomena of somnolence, under which the patient sank, for the obstruction of the capillaries with fat must have constituted an impediment to the circulation, and to the metamorphosis of tissue. But it must be acknowledged that it is not easy to explain the change of the urine with respect to the albumen and the amount of urea, in reference to which we can form only uncertain conjectures."

SLOW POISONING BY PREPARATIONS OF LEAD; ITS INFLUENCE ON THE OFFSPRING.

THIS subject has been made the study of M. Constantine Paul, of Paris, and the results of his observations are deposited in the Archives Générales de Medecine. We condense a résumé of the work as given in the *Gazette Hebdomadaire.*

The attention of M. Paul was first directed to the hereditary transmission of the effects of inorganic substances introduced into the system, by the case of a woman who had given birth to three healthy children before she became exposed to the influence of lead; but who, after she had become exposed, had, in ten pregnancies, eight miscarriages, one stillborn child, and one born at full term, but which died at the age of six months. The investigations which M. Paul instituted to ascertain whether the lead could have been the cause of this mortality in children, led him to collect eighty-one observations, principally of women. From these he considers himself justified to affirm: "that the saturnine intoxication manifests itself not only by the ordinary accidents which we know, but also by the death of the fœtus, or the premature birth of the infant, whether it be the father or the mother who has been the subject of lead poisoning."

This fact is obvious, says the author:

"1. From the occurrence of metrorrhagias in women who have

had a suppression of the menses during one or more months, with all the signs leading to a suspicion of pregnancy, as far as these signs at so limited a period are of avail; 2. From miscarriages at three to six months; 3. From premature births, in which the children were stillborn or dying; 4. From a mortality below the average, during the first three years of infancy."

Here are some of the details. The eighty-one observations of M. Paul gave a number of 123 pregnancies. In these were: 64 abortions; 4 premature deliveries, one at the seventh, and the other at the third month; 5 stillborn; 20 children died in the first year; 8 in the second year; 7 in the third year; 1 died at a later period: 14 living children, of which only 10 are over three years of age; 15 hæmorrhages, belonging doubtlessly to abortions at a very early stage of pregnancy. Thus, in 123 confined pregnancies, 73 children died before accouchement. These figures speak for themselves.

The noxious influence of saturnine intoxication upon the offspring is thus obvious. Another proof is found, when the results of pregnancy before and after the lead-poisoning are compared. M. Paul cites the cases of five women, who, before being subjected to the lead, had together given birth to nine children at full term, and without metrorrhagias, miscarriages, or other accidents. Since they had been exposed to the lead, they represented together 35 pregnancies; among these there were 26 miscarriages; 1 premature birth; 2 stillborn; 5 children died—4 in the first year; 2 are living—one weak and feeble, and the other has not reached its third year.

Again, M. Paul cites the case of a woman who had five miscarriages in so many pregnancies, while she worked in lead, and who, after having changed her occupation, gave birth to a living and thriving child.

The influence of lead poisoning, transmitted by the father to the child, is as clear as that by the mother. It is perhaps less fatal, probably because in the mother the intoxication operates upon the organism, not only at the moment of conception, but during the whole period of gestation.

The aptitude of fecundation does not appear to be modified by the saturnine intoxication.—*Cincinnati Lancet and Observer.*

On the Union of Fractures in Mercurio-Syphilitic Patients. By Prof. Sigmund, of Vienna.—A young man in the Hospital of Vienna, while undergoing treatment by means of mercurial inunctions, on account of syphilitic ulcers of the skin, and affection of the bones, met with an injury; as the result of which, he sustained an oblique fracture of the humerus about an inch below the tuberosities, accompanied with considerable contusion of

the soft parts, and extravasation of blood. Cold applications were made use of, and the arm was put up in splints in the usual way; no unpleasant symptom occurred, and consolidation of the fractured bone was complete on the thirty-third day from the receipt of the injury. Around the united ends of the bone there was a very considerable bony swelling; in other respects the form and direction of the limb were quite normal. On the day when the fracture was sustained, the patient had undergone the ninth of a series of fifty mercurial inunctions; this treatment was not discontinued, but was carried on uninterruptedly until the disappearance of the syphilitic symptoms.

Prof. Sigmund has met with five cases where syphilitic patients have sustained fractures while undergoing mercurial treatment. The bones broken in these cases were, the right radius (twice), the left fibula, the left clavicle, and the left humerus. Complete union of the fractured bones had occurred on the twenty-third, the twenty-sixth, the thirtieth, the twenty-second and the thirty-fourth days respectively. In all these cases the results were satisfactory. In none of these cases was the mercurial treatment discontinued, nor was any change made in the diet of the patients.

It is well known that in syphilitic patients no important deviation from the normal course occurs in the healing of wounds of the soft parts. Prof. Sigmund has had occasion to perform numerous and various operations in the syphilitic, and his observations entirely confirm the general opinion.

Prof. Sigmund does not believe that the bones of syphilitic patients, whether or not they have been treated with mercury, are more readily fractured than the bones of those who have not had syphilis, and have not taken mercury.—*Zeitschrift der k. k. Gesellschaft der Aerzte zu Wein.*

THE BOSTON MEDICAL AND SURGICAL JOURNAL.

BOSTON: THURSDAY, NOVEMBER 1, 1860.

PUMPKIN-SEEDS IN TÆNIA SOLIUM.—Kousso and the ethereal tincture of male fern are certainly very efficacious in effecting the expulsion of the tænia; but practitioners should note the results obtained in Algeria by M. Tarneau, a military surgeon. Free ten drachms of pumpkin-seeds from their husks, pound them in a mortar with a sufficiency of sugar, and add to the paste thus obtained a cup of milk. The patient should be put on a very low diet, and be given a small dose of castor oil; on the next morning the pumpkin-seed electuary must be taken at an early hour, and from twelve drachms to one ounce of castor oil two hours afterwards.—*London Lancet.*

It will be remembered by our readers that attention in this country was first called to the employment of pumpkin-seeds, as an anthelmintic remedy, by Dr. J. S. Jones, of this city, some account of his experiments and observations having been published in this JOURNAL, in

May, 1849. Subsequent opportunities for testing the remarkable power of this remedy in cases of tænia, served only to confirm the statements of Dr. J., and at this time it ranks high as a vermifuge. Although it had been mentioned by writers on materia medica, some time previously, as possessing supposed efficacy, its employment in this country, and to a great extent in Europe, dates from the time when first employed by Dr. Jones. From the convenience of the remedy, and its freedom from any unpleasant taste or effects, together with its well-attested powers, it certainly deserves the place it now holds in the list of anthelmintics.

Medical Progress in Illinois.—Among other resolutions recently passed by the Medical Society of the town of Galesburg, Illinois, were two referring to the confidential character of the relations that should exist between the physician and patient, which we are glad to re-publish, as showing a true appreciation of the position of the medical profession, with reference to the public, and that watchful care over its rights and duties which has been too often neglected in other portions of the country. It will be seen that it is proposed to memorialize the legislature of Illinois for the purpose of calling its attention to these resolutions, and obtaining, if possible, the same statutory provisions which exist in several of the other States. We heartily agree with the hope that has been expressed that the example of the Galesburg Society will be speedily followed by every society throughout the State, and that similar efforts will be made in other States into which these reforms have not yet found their way.

"*Resolved*, That we hold the relation of physician and patient to be of the most private, personal and confidential character; and as such should ever be held inviolate, and as exempt from inquisitorial proceedings as those of the attorney and his client. That in accordance with these sentiments we claim that no person duly authorized to practise medicine and surgery should be compelled to disclose any information which he may have acquired in attendance on any patient in a professional character, and which information was necessary to enable him to prescribe intelligently, as a physician, or do any act as a surgeon.

"*Resolved*, That the statutes of the States of New York, Michigan, Iowa, Wisconsin and Missouri, extending to the medical profession these legal privileges, are founded in justice and good morals, and have a proper regard for the peace of families and the community, and therefore receive our entire approval in meeting the wants of the profession in this State.

"*Resolved*, That at the proper time this Society will prepare a memorial to the Legislature calling attention to these, as we believe, rightful statutory provisions, and ask for such enactments as the several cases herewith presented may require.

"*Resolved*, That we recommend similar action to other medical societies, and we solicit their active coöperation in carrying out the spirit of these resolutions."

Prizes for 1861. For the Medical Profession.—*American Medical Association.* Two prizes of $100 each to the best two volunteer communications reported favorably by the Committee. Committee for 1860-61, Drs. Daniel Brainard, Chicago, Ill.; D. L. McGugen, Iowa; M. L. Litten, Mo.; John Evans, Ill.; A. L. McArthur, Ill. Papers must be sent to the Chairman before June, 1861.

Boylston Prizes.—Two, $60 each, or a gold medal of that value. Subjects—1. *Excision of Joints.* 2. *Diagnosis and Treatment of*

Chronic Pleurisy. Papers must be sent to Dr. Edward Reynolds, Boston, on or before April 1, 1861.

Fiske Fund.—Two, $100 each. SUBJECTS—1. *Aneurism; its Varieties and their Appropriate Treatment.* 2. *Ozone; its Relations to Health and Disease.* Papers must be sent to Dr. S. A. Arnold, Providence, R. I., on or before May 1, 1861.

Stevens Prize, offered by Alexander H. Stevens, M.D., LL.D.—This prize, consisting of the sum of One Hundred Dollars, will be awarded for the best series of preparations which shall adequately illustrate the Anatomy, Physiology and Pathology of the Larynx. The preparations should be sent in to Dr. Henry Sands, Curator of the College, on or before the first day of March, 1861. The preparations receiving the above prize, as well as those of which honorable mention may be made, will be deposited in the Museum of the College of Physicians and Surgeons, inscribed with the names of the successful competitors.

O'Reilly's Prize to Medical Students.—A premium of $250 for the Essay which shall be judged the best by competent judges, on the Anatomy and Physiology of the Animal and Organic Nervous Systems. The Essays to be sent, on or before the 1st of March, 1861, to Dr. John O'Reilly, 230 Fourth Street, New York.—*Am. Med. Times.*

MURIATE OF AMMONIA IN NERVOUS CEPHALALGIA.—Professor Barallier, of Toulon, reports that within the last three years he had administered the substance in 259 cases of nervous cephalalgia, and with success in 202 of these. He gives forty-five grains combined with mint-water and syrup of orange-peel, divided into three doses, to be taken at intervals of half an hour, amendment commencing after the first dose, and the third frequently not requiring to be taken. To prove effectual, however, the remedy should not be given at the very commencement of a paroxysm, but when it has acquired great intensity. This agent not only gives relief to the urgent pain of the paroxysms, but, after having been had recourse to on several occasions, diminishes the number and frequency of these. To be of use, it must not be indiscriminately used for every cephalalgia; and the result of the analysis of M. Barallier's experience leads to the following conclusions:—

1. The muriate almost constantly dissipates paroxysms of idiopathic migraine, and of migraine consecutive to too abundant menstruation.

2. It is powerless in the hemicrania which is dependent upon irregularity or suppression of the menses.

3. It is tolerably successful in cranial pains dependent upon disorder of the stomach, and the accidental cephalalgia frequent in women and feeble persons under the influence of sudden changes of the atmosphere, prolonged intellectual labor, or moral emotion.

4. It operates beneficially in cephalalgias consecutive to repeated paroxysms of intermittent fever; those which are observed during the decline of severe fever, and in the course of the irritative period of typhus.—*Bull. de Therap. and Dublin Med. Press.*

A VERDICT OF MANSLAUGHTER AGAINST TUMBLETY.—What we have often thought would occur has occurred at last; not that there might not have existed months ago ample enough grounds for a Coroner's Jury and its verdict, but that a peculiar good fortune seems to have attended Tumblety's proceedings, and secured him an exemption. His good genius

has at last deserted him, and to avoid the consequences of a trial before his compeers and its award, Tumblety has fled to regions unknown; in all probability to the United States, where it is not unlikely, that *with the assistance of the press, which he subsidizes heavily,* he will be permitted again to continue his vocation, reap handsome returns, and send more unfortunate trusting victims to their graves. *Without the assistance of the press, it is impossible that he could have succeeded as he did, and this inquest discloses the fact, that it was in consequence of seeing his advertisements, and believing in them, that the unfortunate man Portmore entrusted his life in his hands, and fell the victim of his credulity.—British American (Montreal) Journal.*

Medical Lectures of Harvard University.—We call the attention of our readers to the notice of the introductory lecture to be delivered on Wednesday next, at 12, M., at the Massachusetts Medical College, by Dr. J. B. S. Jackson, Professor of Morbid Anatomy. With this lecture commences the winter course of instruction, which, with the facilities now afforded, is worthy the attention of students in every portion of the country.

Dr. Holmes's Address.—We notice a statement in the Philadelphia *Medical and Surgical Reporter* that copies of the above Address can be had on application to the publisher of this Journal. We are authorized to say that the edition printed has been for some time exhausted, and copies cannot now be had. Probably arrangements will be made for its publication hereafter, in connection with other productions of the author.

It was stated in the last number of the Journal, in connection with Dr. Acland's visit, that the surgeon who performed the first operation with ether was present. It should have been the first *capital* operation. The very first operation was performed by Dr. J. C. Warren.

Prof. W. H. N. Magruder, Baton Rouge, La., is collecting materials for a biography of the late Dr. Drake. All who have any letters or papers, or are acquainted with any facts or incidents, which may be of value in the preparation of such a work, will please address Prof. M. as above.

The Retirement of M. Ricord.—M. Ricord has retired from his post as surgeon of the Hospital du Midi. The hospital regulation which requires the retirement of medical officers at the age of sixty, would soon have completed his term of service, but he has chosen a more dignified leave by resignation.

Ricord was born in Baltimore on the 10th of December, 1800, and has held his position in the hospital for nearly thirty years. His opportunities have been unequalled, and his great reputation has been the result of immense labor and observation on the specialty which is so much indebted to him for its development.

Ricord's place, it is said, is to be filled by one whose name is not unknown to syphilography—M. Alphonse Guerin.—*Medical and Surgical Reporter.*

EXAMINATION OF THE SEEDS OF RICINUS COMMUNIS.—The Society of Pharmacy of Turin offers a prize of 500 livres for an answer to the following propositions:—

"To determine the quantity and quality of the proximate principles contained in the seeds of ricinus communis.

"To make known the cause of the marked difference which is observed in the mode of action upon the animal economy between the seeds and the expressed oil of the seeds of the ricinus. And, to indicate, if possible, the respective action of the divers principles isolated.

"A specimen of the principles which the author may be able to isolate, should accompany the memoir.

"The memoir, written in either Italian, French, or Latin, should be sent before the 31st of December, 1861, to M. Chiaperro Francesco, General Secretary of the Society, at Turin."—*Bouchardat, Répertoire.*

This interesting subject is understood to be offered to universal competition, and the honor as well as the prize for the essay are well worth having. The plant is largely cultivated in our Middle and Western States, and the oil forms a staple commodity. The honor of this essay is therefore quite within the reach of our scientific men.—*American Medical Times.*

HUMANE IMPROVEMENTS IN SLAUGHTERING.—*L'Union Medicale* lately published a valuable report read at the general meeting of the Paris Society for the Prevention of Cruelty to Animals. In this document are described several cruel practices which are of daily occurrence, both during the conveyance of the animals to Paris and the actual treatment of them at the slaughter-houses. It is to be hoped that this publicity will lead to the removal of the evils alluded to. Amongst the suggestions which the report has drawn forth, is one which deserves attention. M. Auber, of Macon, thinks that air injected or blown into an opened vein would bring on instantaneous and painless death; and grounds his belief upon the effect produced upon dogs and other animals by this mode of destruction. He adds that it was customary with the French army at Rome to kill in this humane manner horses unfit for further service.—*London Lancet.*

PROF. J. ADAMS ALLEN, of Rush Medical College, has been appointed to the Chair of Materia Medica, in the Chicago College of Pharmacy.

VITAL STATISTICS OF BOSTON.

FOR THE WEEK ENDING SATURDAY, OCTOBER 27th, 1860.

DEATHS.

	Males.	*Females*	*Total.*
Deaths during the week,	40	33	73
Average Mortality of the corresponding weeks of the ten years, 1850-1860,	34.2	35.5	69.7
Average corrected to increased population,	..	..	77.8
Deaths of persons above 90,	..	..	..

Mortality from Prevailing Diseases.

Phthisis.	Chol. Infan.	Scar. Fev.	Pneumonia.	Measles.	Smallpox.	Dysentery.	Typhoid Fever.
8	2	5	7	0	0	1	5

METEOROLOGY.

From Observations taken at the Observatory of Harvard College.

Mean height of Barometer,	30.072	Highest point of Thermometer,	66°
Highest point of Barometer,	30.360	Lowest point of Thermometer,	35°
Lowest point of Barometer,	29.832	General direction of Wind,	S. W. & N.
Mean Temperature,	52°.2	Whole am't of Rain in the week	1.178

Deaths in Boston for the week ending Saturday noon, October 27th, 73. Males, 40—Females, 33.—Accidents, 4—apoplexy, 1—asthma, 1—bronchitis, 1—congestion of the brain, 2—cancer, 1—cholera infantum, 2—consumption, 8—convulsions, 2—croup, 1—cyanosis, 1—debility, 2—diarrhœa, 2—diabetes, 1—dropsy, 1—dropsy of the brain, 1—dysentery, 1—scarlet fever, 5—typhoid fever, 4—gangrene, 1—gastritis, 1—hæmoptysis, 1—homicide, 1—insanity, 1—intemperance, 1—disease of the liver, 1—congestion of the lungs, 1—inflammation of the lungs, 7—marasmus, 2—neuralgia, 1—old age, 2—pleurisy, 1—premature birth, 4—spine, fracture of, 1—thrush, 1—unknown, 3.

Under 5 years, 25—between 5 and 20 years, 9—between 20 and 40 years, 17—between 40 and 60 years, 14—above 60 years, 8.